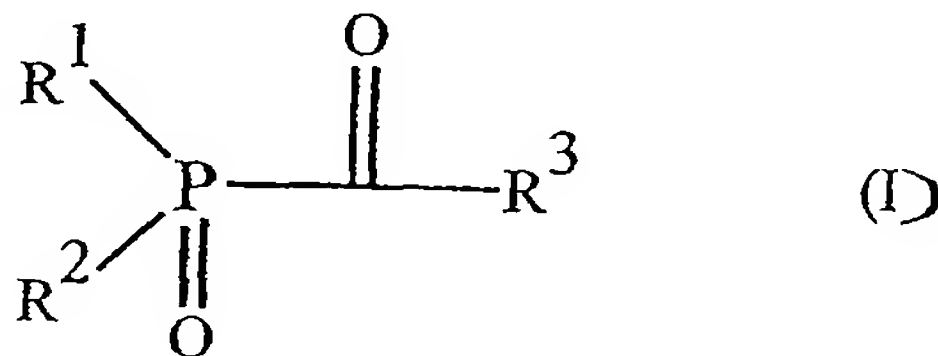


## AMENDMENTS TO THE CLAIMS

1. (Original) An energy curable intaglio printing ink, curing by free radical, acrylate chemistry, and including a photoinitiator comprising an acylphosphine oxide, whereby the ink does not fluoresce in at least the visible light wavelength region when exposed to ultraviolet light.
2. (Original) A printing ink according to Claim 1, in which said acylphosphine oxide is a compound of formula (I):

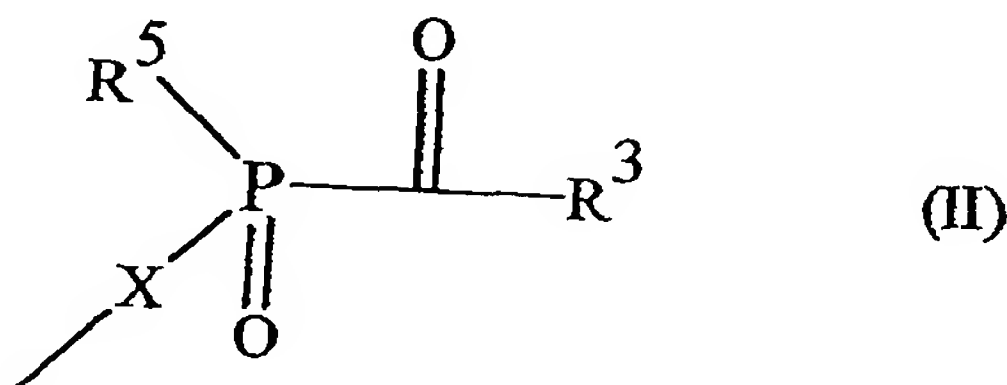


in which:

$\text{R}^1$  and  $\text{R}^2$  are independently selected from  $\text{C}_1 - \text{C}_{12}$  alkyl groups,  $\text{C}_3 - \text{C}_7$  cycloalkyl groups, aryl groups, aralkyl groups, heterocyclic groups having from 3 to 7 ring atoms, of which at least one is a sulphur or nitrogen atom and groups of formula  $-\text{COR}^3$ ,

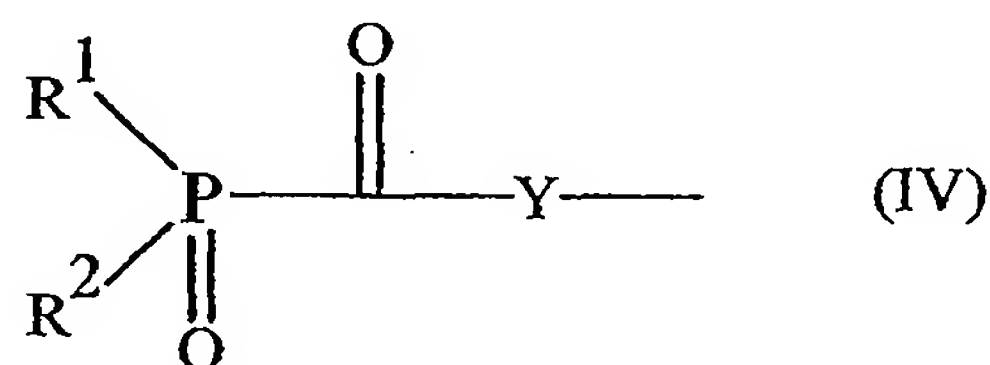
or  $\text{R}^2$  represents a group of formula  $-\text{OR}^4$ , where  $\text{R}^4$  represents a  $\text{C}_1 - \text{C}_6$  alkyl group,

an aryl group, an aralkyl group or a cationic group or atom, or  $\text{R}^2$  represents a group of formula (II):



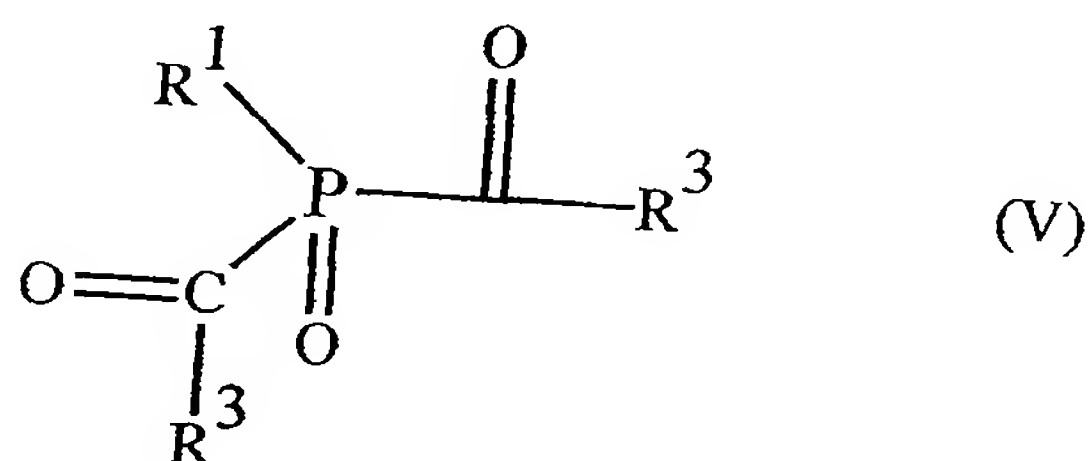
where X represents a  $\text{C}_1 - \text{C}_{18}$  alkylene group or a biphenyldiyl group, and  $\text{R}^5$  represents any of the groups represented by  $\text{R}^1$  or a group of formula  $-\text{OR}^4$ , and

R<sup>3</sup> represents a C<sub>1</sub> – C<sub>6</sub> alkyl group, an aryl group, a heterocyclic group having from 3 to 7 ring atoms, of which at least one is a sulphur or nitrogen atom, or a group of formula (IV):



where Y represents a C<sub>1</sub> – C<sub>18</sub> alkylene group a phenylene group, a cyclohexylene group or a biphenyldiyl group.

3. (Original) A printing ink according to Claim 2, in which said acylphosphine oxide is a compound of formula (V):



in which:

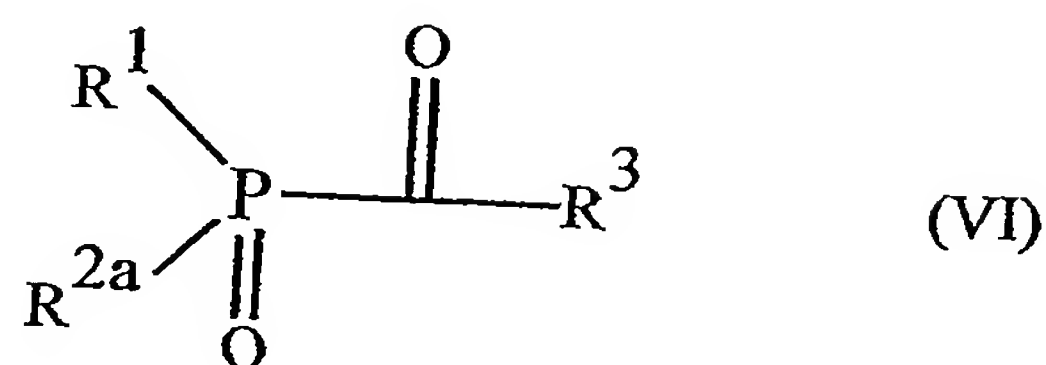
R<sup>1</sup> represents a C<sub>1</sub> – C<sub>12</sub> alkyl group, a cyclohexyl group or an aryl group; and

R<sup>3</sup> is as defined in Claim 2.

4. (Original) A printing ink according to Claim 3, in which each R<sup>3</sup> is independently selected from phenyl groups and phenyl groups having from 1 to 4 halogen and/or C<sub>1</sub> – C<sub>6</sub> alkyl and/or C<sub>1</sub> – C<sub>6</sub> alkoxy substituents.

5. (Currently amended) A printing ink according to ~~Claim 3 or~~ Claim 4, in which R\* represents a C<sub>1</sub> — C<sub>12</sub> alkyl group or a phenyl group which is unsubstituted or has from 1 to 3 C<sub>1</sub> – C<sub>6</sub> alkyl or alkoxy substituents.

6. (Original) A printing ink according to Claim 2, in which said acylphosphine oxide is a compound of formula (VI):

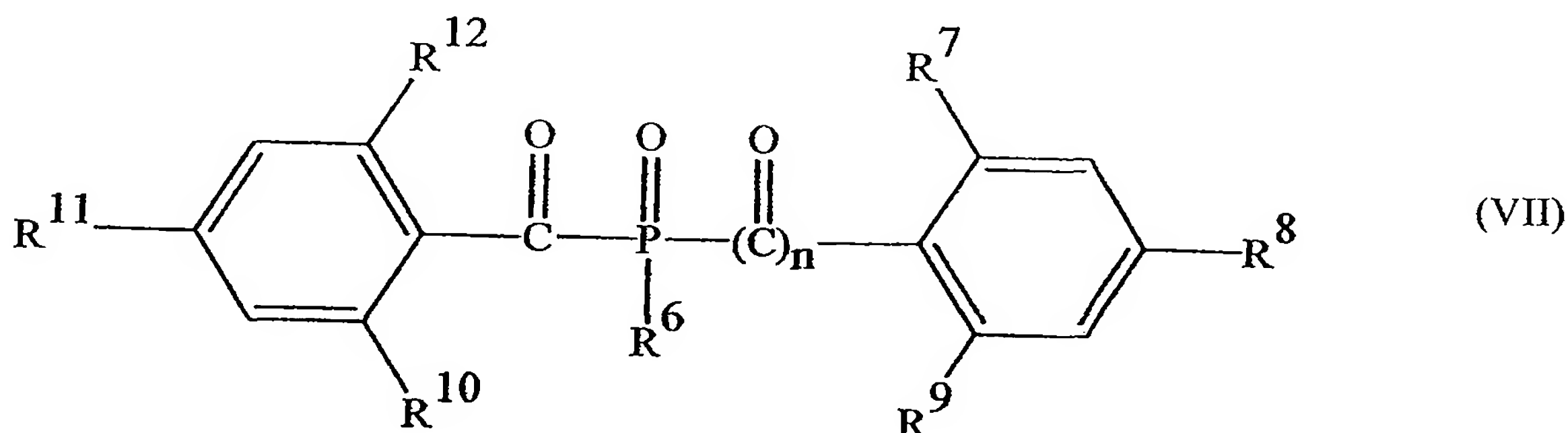


in which:

$\text{R}^1$  and  $\text{R}^3$  are as defined in Claim 2; and

$\text{R}^{2a}$  represents a  $\text{C}_1 - \text{C}_{12}$  alkyl group, a  $\text{C}_3 - \text{C}_7$  cycloalkyl group, an aryl group, an aralkyl group, a heterocyclic group having from 3 to 7 ring atoms, of which at least one is a sulphur or nitrogen atom, or a group of formula—  $\text{OR}^4$ , where  $\text{R}^4$  is defined in Claim 2.

7. (Original) A printing ink according to Claim 2, in which said acylphosphine oxide is a compound of formula (VII):



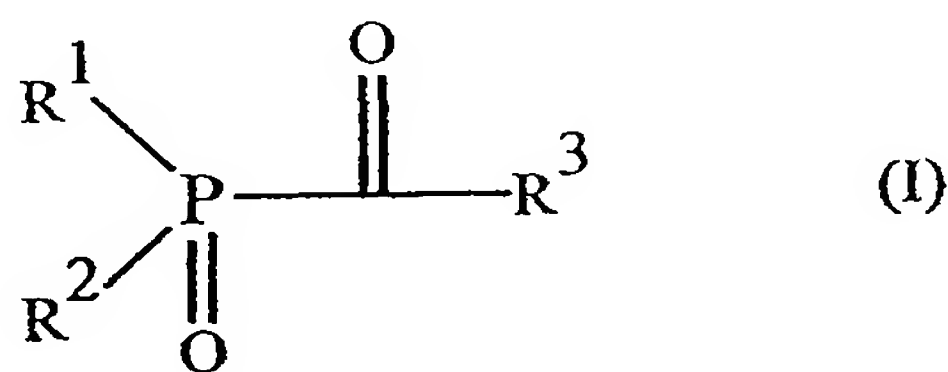
in which:

$n$  is 0 or 1;

$\text{R}^6$  represents a  $\text{C}_1 - \text{C}_{12}$  alkyl group, a  $\text{C}_1 - \text{C}_6$  alkoxy group, a phenyl group or a phenyl group having from 1 to 4 substituents selected from  $\text{C}_1 - \text{C}_6$  alkyl groups,  $\text{C}_1 - \text{C}_6$  alkoxy groups and halogen atoms; and

$R^7$ ,  $R^8$ ,  $R^9$ ,  $R^{10}$ ,  $R^{11}$  and  $R^{12}$  are the same as or different from each other and each represents a hydrogen atom, a  $C_1 - C_6$  alkyl group, a  $C_1 - C_6$  alkoxy group or a halogen atom.

8. (Original) A printing ink according to Claim 2, in which said acylphosphine oxide is 2,4,6-trimethylbenzoyl diphenylphosphine oxide, bis(2,4,6-trimethylbenzoyl) phenylphosphine oxide, ethyl 2,4,6-trimethylbenzoyl diphenylphosphinate or bis(2,6-dimethoxybenzoyl)-2,4,4-trimethylpentylphosphine oxide.
9. (Original) A method of producing a document, which comprises intaglio printing on a substrate which does not fluoresce in at least the visible region under ultraviolet light using an intaglio printing ink, curing by free radical acrylate chemistry, and which includes a photoinitiator comprising an acylphosphine oxide, and curing the ink by exposure to a source of radiant energy.
10. (Original) A method according to Claim 9, in which said radiant energy is ultraviolet.
11. (Currently amended) A method according to ~~Claim 9 or~~ Claim 10, in which said acylphosphine oxide is a compound of formula (I):

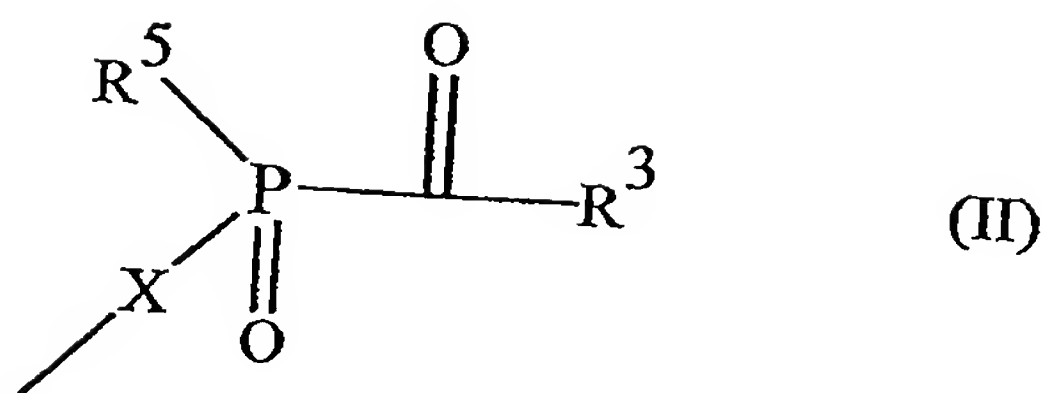


in which:

$R^1$  and  $R^2$  are independently selected from  $C_1 - C_{12}$  alkyl groups,  $C_3 - C_7$  cycloalkyl groups, aryl groups, aralkyl groups, heterocyclic groups having from 3 to 7 ring atoms, of which at least one is a sulphur or nitrogen atom and groups of formula  $-COR^3$ ,

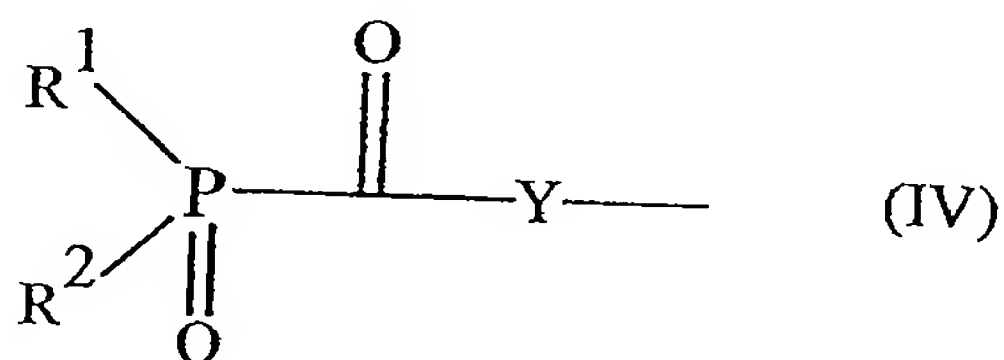
or  $R^2$  represents a group of formula  $-OR^4$ , where  $R^4$  represents a  $C_1 - C_6$  alkyl group,

an aryl group, an aralkyl group or a cationic group or atom, or  $R^2$  represents a group of formula (II):



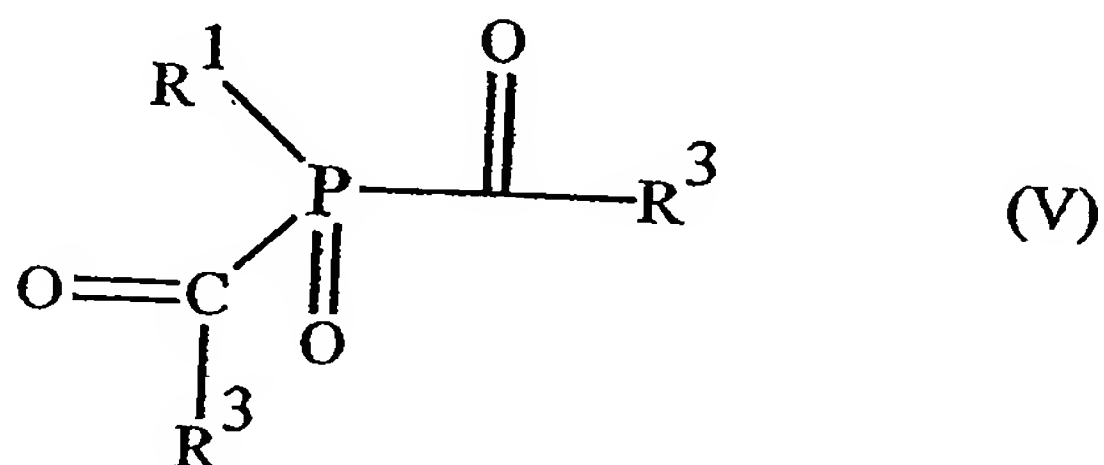
where X represents a C<sub>1</sub> – C<sub>18</sub> alkylene group or a biphenyldiyl group, and R<sup>5</sup> represents any of the groups represented by R<sup>1</sup> or a group of formula –OR<sup>4</sup>, and

R<sup>3</sup> represents a C<sub>1</sub> – C<sub>6</sub> alkyl group, an aryl group, a heterocyclic group having from 3 to 7 ring atoms, of which at least one is a sulphur or nitrogen atom, or a group of formula (IV):



where Y represents a C<sub>1</sub> – C<sub>18</sub> alkylene group a phenylene group, a cyclohexylene group or a biphenyldiyl group.

12. (Original) A method according to Claim 11, in which said acylphosphine oxide is a compound of formula (V):



in which:

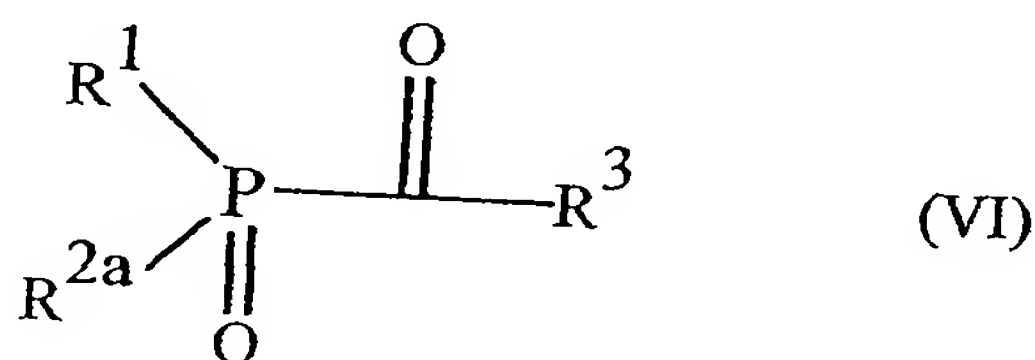
R<sup>1</sup> represents a C<sub>1</sub> – C<sub>12</sub> alkyl group, a cyclohexyl group or an aryl group; and

R<sup>3</sup> is as defined in Claim 11.

13. (Original) A method according to Claim 12, in which each  $R^3$  is independently selected from phenyl groups and phenyl groups having from 1 to 4 halogen and/or  $C_1 - C_6$  alkyl and/or  $C_1 - C_6$  alkoxy substituents.

14. (Currently amended) A method according to ~~Claim 12~~ or Claim 13, in which  $R^1$  represents a  $C_1 - C_{12}$  alkyl group or a phenyl group which is unsubstituted or has from 1 to 3  $C_1 - C_6$  alkyl or alkoxy substituents.

15. (Original) A method according to Claim 11, in which said acylphosphine oxide is a compound of formula (VI):



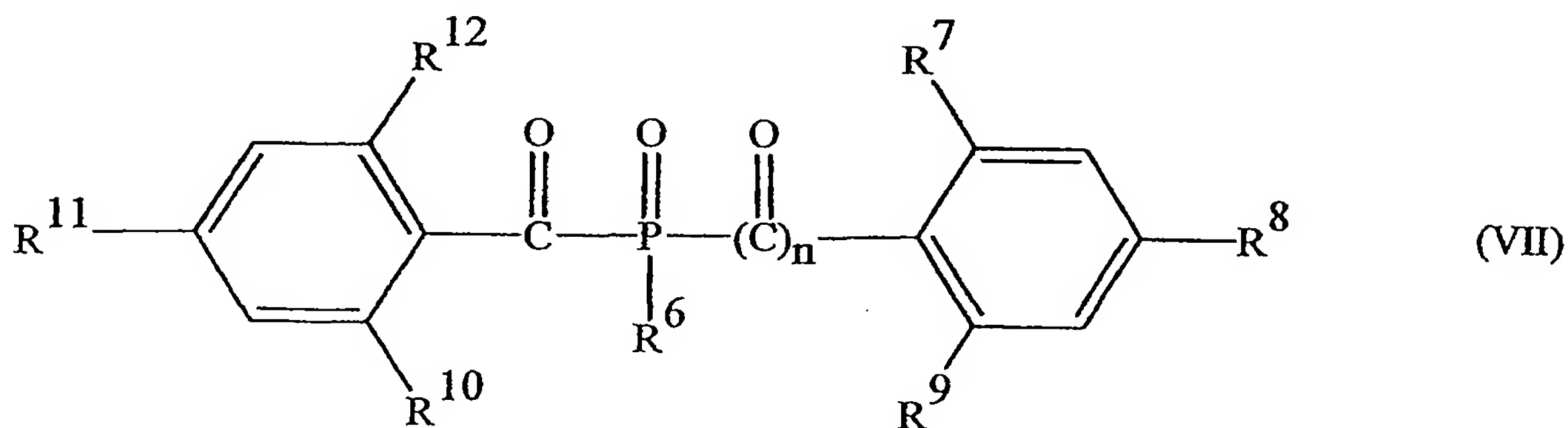
in which:

$R^1$  and  $R^3$  are as defined in Claim 11; and

$R^{2a}$  represents a  $C_1 - C_{12}$  alkyl group, a  $C_3 - C_7$  cycloalkyl group, an aryl group, an aralkyl group, a heterocyclic group having from 3 to 7 ring atoms, of which at least one

is a sulphur or nitrogen atom, or a group of formula  $-OR^4$ , where  $R^4$  is defined in Claim 11.

16. (Original) A method according to Claim 11, in which said acylphosphine oxide is a compound of formula (VII):



$R^7$ ,  $R^8$ ,  $R^9$ ,  $R^{10}$ ,  $R^{11}$  and  $R^{12}$  are the same as or different from each other and each represents a hydrogen atom, a  $C_1 - C_6$  alkyl group, a  $C_1 - C_6$  alkoxy group or a halogen atom.

17. (Original) A method according to Claim 11, in which said acylphosphine oxide is 2,4,6-trimethylbenzoyl diphenylphosphine oxide, bis(2,4,6-trimethylbenzoyl)phenylphosphine oxide, ethyl 2,4,6-trimethylbenzoyl diphenylphosphinate or bis(2,6-dimethoxybenzoyl)-2,4,4-trimethylpentylphosphine oxide.

18. (Currently amended) A method according to ~~any one of Claims 9 to 17~~ Claim 9, in which the substrate is a paper.

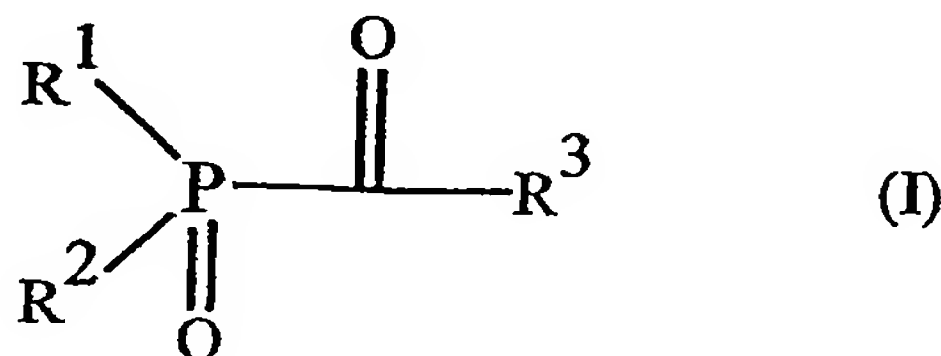
19. (Currently amended) A method according to ~~any one of Claims 9 to 18~~ Claim 9, in which the document is a security document.

20. (Original) A method according to Claim 19, in which the security document is a banknote.

21. (Canceled)

22. (New) A method according to Claim 12, in which  $R^1$  represents a  $C_1 - C_{12}$  alkyl group or a phenyl group which is unsubstituted or has from 1 to 3  $C_1 - C_6$  alkyl or alkoxy substituents.

23. (New) A method according to Claim 9, in which said acylphosphine oxide is a compound of formula (I):

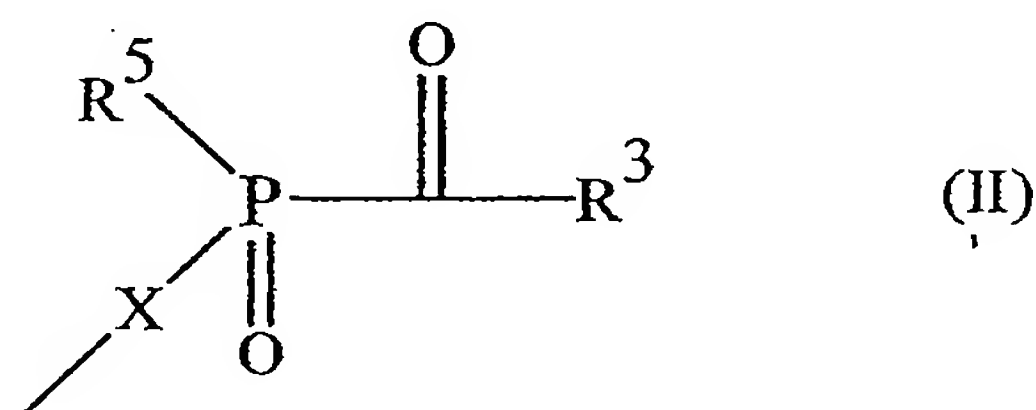


in which:

$R^1$  and  $R^2$  are independently selected from  $C_1 - C_{12}$  alkyl groups,  $C_3 - C_7$  cycloalkyl groups, aryl groups, aralkyl groups, heterocyclic groups having from 3 to 7 ring atoms, of which at

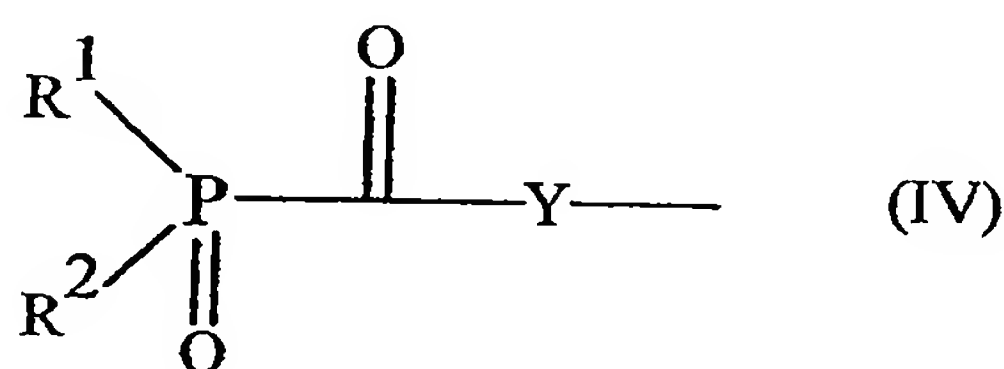
least one is a sulphur or nitrogen atom and groups of formula  $-\text{COR}^3$ ,  $\text{R}^1$  and  $\text{R}^2$  are independently selected from  $\text{C}_1 - \text{C}_{12}$  alkyl groups,  $\text{C}_3 - \text{C}_7$  cycloalkyl groups, aryl groups, aralkyl groups, heterocyclic groups having from 3 to 7 ring atoms, of which at

or  $\text{R}^2$  represents a group of formula  $-\text{OR}^4$ , where  $\text{R}^4$  represents a  $\text{C}_1 - \text{C}_6$  alkyl group, an aryl group, an aralkyl group or a cationic group or atom, or  $\text{R}^2$  represents a group of formula (II):



where X represents a  $\text{C}_1 - \text{C}_{18}$  alkylene group or a biphenyldiyl group, and  $\text{R}^5$  represents any of the groups represented by  $\text{R}^1$  or a group of formula  $-\text{OR}^4$ , and

$\text{R}^3$  represents a  $\text{C}_1 - \text{C}_6$  alkyl group, an aryl group, a heterocyclic group having from 3 to 7 ring atoms, of which at least one is a sulphur or nitrogen atom, or a group of formula (IV):



where Y represents a  $\text{C}_1 - \text{C}_{18}$  alkylene group a phenylene group, a cyclohexylene group or a biphenyldiyl group.

24. (New) A printing ink according to Claim 3, in which  $\text{R}^*$  represents a  $\text{C}_1 - \text{C}_{12}$  alkyl group or a phenyl group which is unsubstituted or has from 1 to 3  $\text{C}_1 - \text{C}_6$  alkyl or alkoxy substituents.